

WHAT IS CLAIMED IS:

1. A method for avoiding interference during operation of a first RF device employing a first frequency hopping spread spectrum protocol, in conjunction with the operation of at least one other RF device employing a different communications protocol, comprising:

identifying an interference from the at least one other RF device in the radio communication band employed by the first RF device; and

adjusting the frequency of operation of the first device to avoid overlap with the at least one other device.

2. The method of claim 1, wherein the identifying an interference comprises:
selecting a plurality of test channels in accordance with a channel structure of the interferer;

selecting a frequency that is potentially occupied by the interferer in each selected channel;

measuring a received signal strength associated with each selected channel; and
identifying the interferer in accordance with the measured received signal strength indicators.

3. The method of claim 1, wherein the identifying an interference comprises determination of a bit error rate of frame error rate.

4. The method of claim 2, wherein the at least one other RF device includes a fixed frequency duplex device.

5. The method of claim 2, wherein the at least one other RF device includes a second device, wherein the second device operates according to the IEEE 802.11 protocol.

6. The method of claim 2, wherein the at least one other RF device includes a third device, wherein the third device employs a second frequency hopping spread spectrum protocol.

7. The method of claim 6, wherein the first device the third device operate in the same time domain,

wherein the adjusting the frequency of operation comprises intelligent frequency hopping employed by the first device,

and wherein the hopping frequencies employed by the first device cluster in a first frequency range.

8. The method of claim 6, further comprising:
measuring a received signal strength indicator associated with the third device, by the first device;

converting the received signal strength indicator into interfering signal transmit timing associated with the third device to estimate transmit timing associated with the third device; and

adjusting transmit/receive timing of the first device to avoid interference between the first device and the third device, whereby the first device and the third device do not operate in the same time domain.

9. The method of claim 6, wherein the at least one other RF device further includes a second device, wherein the second device operates according to the IEEE 802.11 protocol.

10. The method of claim 9, wherein the first device and the third device operate in the same time domain, and wherein the first device selects hop frequencies, wherein the hop frequencies cluster in a first frequency range, wherein the first frequency range does not substantially overlap the frequency band employed by the second device.

11. The method of claim 10, wherein the third device includes intelligent frequency hopping capability, whereby the third device selects hop frequencies that cluster in a second frequency range, wherein the second frequency range does not substantially overlap the first frequency range or the frequency band employed by the second device.

12. The method of claim 9, further comprising:
measuring a received signal strength indicator associated with the third device, by the first device;
converting the received signal strength indicator into interfering signal transmit timing associated with the third device to estimate transmit timing associated with the third device; and
adjusting transmit/receive timing of the first device to avoid interference between the first device and the third device, wherein the adjusting the frequency of operation comprises intelligent frequency hopping employed by the first device, whereby the first device and the third device do not operate in the same time domain, and whereby the first and the third device do not substantially overlap the frequency band employed by the second device.

13. A system comprising:

- a first RF module, wherein the first module employs a first frequency hopping spread spectrum protocol;
- at least one additional RF module;
- a first protocol stack and transcoder coupled to the first module; and
- a system microcontroller in communication with the first module and the at least one additional module, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module to avoid interference with the at least one other RF module.

14. The system of claim 13, wherein the at least one additional RF module comprises a second module, and wherein the second module employs a second frequency hopping spread spectrum protocol.

15. The system of claim 14, wherein the wherein the microcontroller receives and sends instructions through the second module protocol stack and transcoder to adjust the operation frequencies employed by the second module to avoid interference with the first RF module.

16. The system of claim 13, wherein the at least one additional RF module comprises a third module employing an 802.11 protocol, wherein the microcontroller receives and sends

instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module to avoid interference with the third RF module.

17. The system of claim 15, wherein the at least one additional RF module further comprises a third module employing an 802.11 protocol, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module to avoid interference with the frequency band associated with the third RF module.

18. The system of claim 17, wherein the microcontroller receives and sends instructions through the second module protocol stack and transcoder to adjust the operation frequencies employed by the second module to avoid interference with the frequency band associated with the third RF module.

19. The system of claim 18, wherein the microcontroller receives and sends instructions through the first module protocol stack and transcoder to adjust the operation frequencies employed by the first module, wherein the first module selects hop frequencies from a first frequency range that does not substantially overlap the band employed by the third RF module.

20. The system of claim 19, wherein the microcontroller receives and sends instructions through the second module protocol stack and transcoder to adjust the operation

frequencies employed by the second module, wherein the second module selects hop frequencies from a second frequency range that does not substantially overlap the first frequency range or the frequency band employed by the third RF module.

21. An RF communications device comprising:

a first RF transceiver employing a frequency hopping spread spectrum protocol, wherein the transceiver includes capability of detection of an interferer employing a different RF communications protocol;

a first frequency hopping spread spectrum protocol stack and transcoder coupled to the first RF transceiver;

and a microcontroller in communication with the protocol stack, wherein the microcontroller facilitates segregation of a set of channels employed by the first transceiver from a set of channels employed by at least one interferer employing a different RF communications protocol.

22. The device of claim 21, further including:

a second RF transceiver in communications with the microcontroller, wherein the second RF transceiver employs a communications protocol different from the first transceiver.